

Illicit Discharge Detection and Elimination: Being Aware of What Goes Into Our Storm Drains

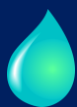


An illicit discharge to a storm drain is a big problem in some areas because it is not always easy to detect and can often go unnoticed. It is also a large source of pollution from uncontrolled sources in the urban landscape. LaRC has worked diligently to develop an effective illicit discharge detection and elimination program over the last decade. *Part of the solution to this problem comes from LaRC employees looking out for these discharges and helping the Center address these issues by reporting what they see.*

What we do every day affects our water. Be sure you know what illicit discharges are so you can help prevent water pollution and keep our waterways clean!

What Is An “Illicit Discharge”?

An illicit discharge is a release of non-storm water to the storm water drainage system. Illicit discharges are considered “illicit” because Municipal Separate Storm Sewer Systems (MS4s) are not designed to accept, process, or discharge such non-storm water wastes. Most storm water drainage systems are designed to quickly carry rainwater away from developed areas and solid surfaces such as roadways, rooftops and parking lots, to natural drainage channels such as rivers and streams. Therefore, storm water systems provide little-to-no treatment of the water that flows through them. LaRC also defines an illicit discharge as any discharge to the MS4 that is not composed entirely of storm water. Illicit discharges are prohibited via Langley Procedural Requirements (LPR) 8500.1, also known as the “Environmental and Energy Program Manual.” *The results from illicit storm water discharge are high levels of pollutants such as heavy metals, oils, greases, solvents, and bacteria flowing directly into our Chesapeake Bay.*



**“NOTHING BUT RAIN
DOWN THE DRAIN”**

Illicit discharges can be from:

- Disposal of vehicle maintenance fluids into a storm drain;
- Hosing or washing loading areas in the vicinity of storm drain inlets;
- Leaking dumpsters flowing into a storm drain inlet;
- Old and damaged sanitary sewer line leaking fluids into a cracked or damaged storm sewer line;
- Illegal dumping;
- Allowing unauthorized wash water with soaps or detergents into a storm drain inlet;
- Washing silt, sediment, concrete, cement or gravel into a storm drain;
- Dewatering of trenches or excavations for utility maintenance or construction; and/or
- A measurable flow during dry weather that contains pollutants or pathogens

Dry weather discharges are composed of one or more possible flow types:

- Sewage flows produced from sewer pipes;
- Wash-water flows from a wide variety of activities and operations;
- Liquid wastes, such as oil, paint, and process water;
- Tap water flows derived from leaks that occur during the distribution of drinking water in the supply system; and
- Groundwater flows that occur when the local water table rises above the bottom elevation of the storm drain and enters through cracks or joints.

Illicit connections can also be considered illicit discharges.

Examples of illicit connections include, but are not limited to:

Sanitary-Sewer Piping that is connected directly from a building to a storm water system:



A basement or shop floor drain that is connected to the storm water system:



What does an Illicit Discharge look like anyway?

Illicit discharges can come from a seemingly endless variety of places and take many forms. There are three primary classifications of illicit discharge as defined by the EPA:



Continuous discharges occur most or all of the time, are usually easier to detect, and typically produce the greatest pollutant load.

Intermittent discharges occur over a shorter period of time (e.g., a few hours per day or a few days per year). Because they are infrequent, intermittent discharges are hard to detect, but can still represent a serious water quality problem, depending on their flow type.

Transitory discharges are extremely hard to detect with routine monitoring, but under the right conditions, can exert severe water quality problems on downstream receiving waters. These discharges occur rarely, usually in response to a singular event such as an industrial spill, ruptured tank, sewer break, transport accident or illegal dumping episode.

Why Are Illicit Discharge Detection and Elimination Efforts Necessary at LaRC?

Over 64,000 square miles of land drain into the Chesapeake Bay or its tributaries. Discharges from MS4s often include wastes and polluted water from non-storm water sources. The result is untreated discharges that contribute high levels of pollutants, including heavy metals, toxics, oil and grease, solvents, nutrients, viruses, and bacteria to receiving water bodies. The Bay and its tidal tributaries are already overweight with nutrients (phosphorus and nitrogen) and sediment. *Pollutant levels from illicit discharges have been shown in EPA studies to be high enough to significantly degrade receiving water quality and threaten aquatic, wildlife, and human health.* These excess nutrients in the Chesapeake Bay can lead to harmful algal blooms that rob the water of oxygen, while excess sediment can block sunlight from reaching underwater grasses that provide key habitat for aquatic life. Excess nutrients and sediment can also negatively affect human health. The National Academy of Sciences states that polluted runoff is the leading known cause of high bacteria levels that trigger beach closings and no-swimming advisories, as well as bans and restrictions on harvesting oysters and other shellfish.



Not all non-storm water discharges are considered illicit discharges.

Examples of exempt discharges include:

- Water line flushing;
- Fire-fighting activities;
- Landscape irrigation;
- Diverted stream flows;
- Rising ground waters;
- Uncontaminated ground water infiltration;
- Uncontaminated pumped ground water;
- Discharges from potable water sources;
- Foundation drains;
- Air conditioning condensation;
- Irrigation water;
- Permitted industrial sources;
- Springs;
- Water from crawl space pumps;
- Footing drains;
- Lawn watering;
- Individual residential car washing;
- Flows from riparian habitats and wetlands;
- Dechlorinated swimming pool discharges; or
- Street wash water.

How Can I Help?

Tell Us What You See: The Center's Illicit Discharge Detection and Elimination (IDDE) program is managed by the Standard Practice and Environmental Engineering Branch (SPEEB). *All employees should report any suspected illicit discharges and/or illegal dumping activities by contacting SPEEB.* SPEEB will investigate all reports and ensure corrective actions if necessary. If you choose to report via email, please include information on the facility, process, time of incident, etc. and any photos. Additionally, you may request for your report to remain confidential.

Spills Happen, Help Us Find Them: The Environmental and Energy Program Manual ([LPR 8500.1](#)) also provides information on applicable regulatory requirements and procedures related to spill control at LaRC. Any LaRC personnel or on-site contractors who discover a release of material shall respond by calling the LaRC Emergency Dispatcher at 911 (from land line phone on Center) or 757-864-2222 (from cell phone). The LaRC Emergency Dispatcher will initiate spill response with the LaRC Fire Department. Center employees can also call the Environmental staff at 757-864-3500 for concerns over potential illicit discharges.



All LaRC employees are encouraged to report any form of illicit discharges and illegal dumping activities.

For any questions regarding the MS4 program or illicit discharges please contact:

Peter Van Dyke
NASA Langley
Water Program Manager
757-864-7517
Peter.vandyke@nasa.gov



Ande Ehlen
Straughan Environmental
Environmental Specialist
757-864-2451
andrea.m.ehlen@nasa.gov